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ABSTRACT

Continuing work led by D. A. Infante, A. S. Rancer, and C. J. Wigley, (i.e., Infante, 1982, 1992, 1996) and others, on argumentativeness and verbal aggressiveness, this study utilizes two instruments recently adapted for use with adolescent populations (A. J. Roberto & M. Finucane, 1997) to assess the effectiveness of communication training. A unique training program was developed and administered to 314 sixth graders, with pre- and post-training assessment. Analysis supports the findings of previous studies indicating that students' scores of both argumentativeness and verbal aggressiveness increased after training. Sex differences are also discussed, along with suggestions for future training and research. Contains 18 references and 2 tables of data. (Author/RS)

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Abstract

Continuing work led by Infante, Rancer, and Wigley, (i.e., Infante, 1982, 1992, 1996) and others, on argumentativeness and verbal aggressiveness, this study utilizes two instruments recently adapted for use with adolescent populations (Roberto & Finucane, 1997) to assess the effectiveness of communication training. A unique training program was developed and administered to 314 sixth graders, with pre- and post-training assessment. Analysis supports the findings of previous studies indicating that students' scores of both argumentativeness and verbal aggressiveness increased after training. Sex differences are also discussed, along with suggestions for future training and research.

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Introduction

With the recent rash of killing sprees in schools across the country, the issue of children, from grade school to high school, engaging in violence is of premiere importance. After blaming music, television, the internet, and parental neglect for these tragedies, schools and communities are seeking ways to reduce the incidence of violence and harassment in the school setting (see Hale et al., 1995, 1996). Initial measures have included constraining student and teen activity, such as introducing metal detectors in schools, instituting school uniforms or restrictive dress codes, and mandating community curfews. There have also been attempts to introduce topics regarding racism and prejudice in schools, along with developing staff/faculty supported peer mediation programs. However, the general way in which the impact of these measures has been conducted is by noting changes in school truancy, detentions, suspensions, and fighting. Although these outcome variables are probably an effective measure regarding these efforts to control the actions of adolescents, in particular, they do little to inform us about the way in which these students have learned to get along better with their peers.

Two measurable traits that are relevant to the study of teens and violence are verbal aggressiveness (Infante & Wigley, 1986) and argumentativeness (Infante & Rancer, 1982). As Infante and colleagues (e.g., Infante, 1987; Infante, Hartley, Martin, Higgins, Bruning, & Hur, 1992; Infante & Rancer, 1982, 1996; Infante & Wigley, 1986) have determined, argumentativeness and verbal aggressiveness not only are measurable traits, but also are

correlated with each other, along with other qualities such as credibility, self-esteem, problem-solving, relational satisfaction, physical aggression and interpersonal violence, leadership, and social perspective taking (see Rancer et al., 1997, for a discussion). However, most research on these two measures, heretofore, has been conducted with adult populations

Roberto & Finucane (1997) have adapted these two measures to adolescent populations finding not only success, but also an interesting and puzzling novelty apparent in this particular population. Also demonstrated in research by Rancer, Whitecap, Kosberg, and Avtgis (1997), Rancer, Avtgis, Kosberg, and Whitecap (2000), in contrast to extant research with adults, verbal aggressiveness and argumentativeness in adolescent populations are positively, rather than negatively, correlated. The results of this study indicate the same puzzling correlation.

In their study, Rancer et al. (1997) used Infante's (1988) Inventional System, developing a training program for which they attained satisfactory results with regard to the construction of better arguments. The premise is that the ability to construct arguments should lead one away from the tendency toward verbal aggressiveness, fighting, and abuse. Somewhat differently than the Rancer et al. (1997, 2000) studies, this study was motivated by a state-wide initiative to infuse the curriculum of all grade levels with guidance on "real life" issues, such as resolving conflicts. At the request of teachers and staff members, a training program in basic interpersonal communication training, with a particular focus in conflict-management, was developed for the entire sixth grade class of a local middle school. The training took place over a two-year period, from 1996-1998, first in developing a training curriculum suitable to the needs of the particular population, as well as identifying appropriate measures for the assessment of this training.

The revised versions of argumentativeness and verbal aggressiveness were utilized, and while the training was different, the results of this study concur with that of Roberto and Finucane (1997), as well as Rancer et al. (1997, 2000). Given the limitations on space, literature that is well-covered elsewhere by Rancer et al. (1997) will not be re-reviewed here. Instead, this paper provides only a short overview of the scales involved, subsequently including extant research not covered by Rancer et al. (1997), as it is relevant to the development of this study, concluding with details of the training program and process. This study hopes to add to the literature and endeavors of a growing number of scholars to address what seems to be a national crisis of teen conflict.

Adolescent Argumentativeness and Verbal Aggressiveness

Argumentativeness (ARG) and Verbal Aggressiveness (VA) are two independent constructs developed and refined over the past decade in an effort to better understand the dynamics of family and work life, across and within various cultures. Argumentativeness is a multidimensional construct intended to measure the tendency to engage in or avoid arguments. Broken down into two sub-constructs, avoid (ARGav) or approach (ARGap), the difference between these two comprises the overall general trait (ARGgt) of argumentativeness. Defined as the predisposition to "advocate positions on controversial issues and to attack verbally the positions which other people take on these issues" (Infante & Rancer, 1982, p. 89), argumentativeness is generally a positive quality.

In contrast, VA is "a personality trait that predisposes person to attack the self-concepts of other people instead of, or in addition to, their positions on topics of communication" (Infante & Wrigley, 1986, p. 61). This scale was developed to test "a model of skill deficiency that

suggests that physical aggression results when people lack the verbal skills necessary to argue constructively" (Rubin et al., 1994, p.387). Some research has supported this connection, especially in marital relationships typified by violence (see Infante et al., 1989; Infante, Sabourin, Rudd, and Shannon, 1990; Payne & Sabourin, 1990; Rancer et al., 1986). Ultimately, VA is more often indicative of dissatisfaction and accompanies violence, whereas ARG is more often associated with positive outcomes.

Recognizing a developmental approach to one's acquisition in communication abilities, Roberto and Finucane (1997) undertook revising both the Argumentativeness Scale (Infante & Wrigley, 1986) and the Verbal Aggressiveness Scale (Infante & Rancer, 1982). The original scales were found to have twelfth (ARG) and eleventh grade (VA) reading levels, necessitating adjustment of the language for use by younger adolescents. Their revisions were shown to be reliable and valid measurements, indicating success in generalizing these constructs to an adolescent population.

Unlike the adult versions and populations, however, these constructs did not prove to be independent constructs, but were strongly and positive correlated (Roberto, 1996; Roberto & Finucane, 1997; Roberto & Wilson, 1996) in adolescent populations. The primary explanation for this difference is due to development, and the possible impact of unmeasured variables, such as education and diversity. Rancer et al., (1997, 2000) offer a few other plausible explanations. First, there is the notion that while the training focused on arguing, it did not address verbal aggressiveness. Like Roberto and Finuane, Rancer et al. explain that verbal aggressiveness among adolescents appears to be a continuing developmental characteristic. Subsequently, rather

than dissipating or decreasing, their tendency toward verbal aggressiveness should continue to rise, rather than fall.

Children, Communication, and Conflict

Previous research on children's and adolescents' perceptions of conflict, including causes and remedies, has revealed that what adults consider to be destructive behaviors often serve some other functions for the children (Hale et al., 1995, 1996). Most notably, engaging in conflict is not necessarily for the purposes of resolving issues, or even obtaining access to scarce resources, but to relieve stress and engage in verbal competition. Using sex to discriminate between these purposes, Hale et al., (1995, 1996) note that boys tend to have arguments regarding the rules of fair play; whereas girls tend to argue about friendships. The girls, especially, were found to be prone toward ostracizing others, especially other girls, in their manipulation of relationships and power.

Likewise, it is also noted by Hale et al., (1995,1996) that middle school often comprises the first opportunity that most students have to mix with peers from backgrounds different from their own. Having previously attended neighborhood elementary schools, due to the unique selection process of the school system, these same students find themselves in classes with students bussed in from across the county. Subsequently, certain schools become noted for their greater diversity across areas of race, socioeconomic status, and religion; the site of this study is one such school.

Middle school also comprises a time of great change in the student him/herself. Merely looking over the students in a 6th grade classroom, one can see the range of developmental progress. Some boys are already developing facial hair with changing voices, while others look

no older than a 3rd grader. Some girls have experienced menarche, while others are wishing for their first training bra. Along with these changes based on one's endocrine system, there are emotional upheavals for these students as they seek, simultaneously, to be just like their peers and, yet, unique and individual.

While these issues are not uncommon or surprising, that these children are undergoing such dramatic physical, emotional, and environmental changes that preclude them to experience considerable anger and frustration do not seem to have been a part of these extant training programs. As previous research has shown, teachers spend time instructing children across the grades (K-12) various aspects of communication (Hale et al., 1995, 1996); however, while there are extant programs and materials available to guide teachers, most have no formal training in communication, not to mention having a lack of time to devote to these topics.

For example, while there are guides to training students and developing a peer mediation program, intervention during the first year of this study revealed several problems perhaps only peculiar to this school setting. Thirteen students were selected from one team to be trained, over a two-week period, in peer mediation. Although the teachers and students readily embraced the notion of peer mediation, it was ultimately found to be too labor intensive, as it required continuous monitoring by faculty. Additionally, it was found that it included too few students to impact a substantial portion of the school population, as well as actually causing more problems as the delay between the infraction and the mediation resulted in even more conflict, with students choosing "sides." Instead of engaging immediately in a fight, or taking the conflict "outside" after school, the conflict was "taken to mediation," with little success. Mediators

became meddlers and conflict became fodder for gossip, which is alone a cause for conflict among students, particularly girls (Hale et al., 1995, 1996).

Finally, there was the simple problem of lacking a suitable space to hold the mediation sessions. Instead, by teaching every child the same material, it was hoped that implementation of the ideas would be more immediate, requiring certainly no more involvement from overburdened faculty to monitor the process, and little time away from the classroom by students or faculty. Ultimately, it was decided to develop a training program and materials that could be presented to students on a larger scale, creating opportunities for a larger range of relevant issues, more trainer expertise, and more continuity in presentation, along with addressing specific cultural issues.

Based on previous research, and the development of training to suit these expectations of enhancing students' communicative abilities, including arguing or conflict management, the following two hypotheses guided this study:

H_1: Training increases students' levels of argumentativeness and verbal.

Should this hypothesis be supported, then the overall question of whether the training was successful would be answered affirmatively. That is, while an increase in argumentativeness is considered to be positive, but an increase in verbal aggressiveness to be negative, a significant increase in these scores would reflect not just a sense of skill acquisition, but of knowledge acquisition as well. It is presumed, in this study, that students unfamiliar with these concepts, as well as with the assessment method, would demonstrate an overall increase due simply to the exposure. While an increase in argumentativeness is more desirable, with the opposite true for verbal aggressiveness, it is possible that the significant increase reflects a growing awareness and honest reflection of their actions.

H_2: Males score significantly higher than females in argumentativeness and verbal aggressiveness.

RQ_1: What effects will age, race, or previous communication training have on students' levels of argumentativeness and verbal aggressiveness from pre- to post-training?

Methods

The training took place within two weeks of both pre and post test events. Team meetings with the teachers, researcher, youth center coordinator, and resources coordinator were held the week prior to the training for each team, with the teachers provided an overview and opportunity to ask questions.

Site Background

The site used in this study is a public school located in an urban community of a fairly large city in the South/Midwest. In addressing desegregation over 20 years prior, the county-wide school system developed a means for admitting and bussing students to various schools across the city, often away from their neighborhood school. The middle school (6^{th} through 8^{th} grades) used in this study has a small "home-school" population, but the majority of the 1200 students in attendance are brought in through advanced placement and application. That is, in the system, students can "apply" to attend various schools in the county. Depending upon grades and letters of recommendation from their teachers, as well as an essay written by the student, students are selected to attend the school of their choice. The primary desirable feature of this particular school was its proximity to the youth performing arts school and, subsequently, its excellent drama, dance, and choral program.

The middle school used in this study has open classrooms; that is, except for classes around the perimeter, the majority of classrooms are designated using movable dividers. As the school at the time of the study was over-enrolled by 400 students, making the teacher to student ration 1:30, it was a rather noisy environment, creating difficulties for classroom presentation. Despite and due to these structural and bureaucratic obstacles, the school was highly dedicated to maintaining peace and order. During class changes, when students were moving about and the environment was chaotic, all the teachers and some staff monitored the students' actions. This management by sheer presence served, also, for the teachers to have contact with each other, as well as with students across all three grade levels. There were also two staff members whose sole purpose was to stop fighting and essentially serve as "bouncers," removing trouble-makers. They constantly roamed the hallways, even between classes, and monitored the students entering and leaving school. These two men were feared, but well-respected.

At the beginning of the 1997-1998 school year, it was approved by all concerned parties (principal, teachers, counselors) to assess and train all members of the sixth grade. There were four teams of sixth graders, with approximately 100 students per team, assigned to three or four sections within the teams (two teams had three sections and two teams had four sections). Informational meetings were held with all teams of teachers, explaining our goals and arranging the most convenient times for the training.

Participants

The participants of this study were 314 6th grade students attending a middle school in Louisville, Kentucky, which is considered an urban environment. There were 132 males and 182 females; ages ranged from 10 (1.1%) years to 13 (4.8%), with 47.6 percent aged 11 and 46.5 aged

12. Twenty-seven point four percent of the students are African-American, 57.6 percent European American, and 4.5 percent Vietnamese. Other nationalities represented included India (1.9%), Bosnia (2.9%), Japan (1.9%), China (1.9%), the Philippines (.3%), and the West Indies (.3%). Only 10 students reported any previous training, and that was in peer mediation.

Consent

Consent to conduct this study was accomplished in two ways. First, permission to gather data and present the training program was readily granted by the school administration as the state's expectations for education reform included an "everyday living" component. Subsequently, upon approval of both the training materials and assessment tools by the school administrators, a letter was sent home to the students' parents, explaining both the training program and the overall study. Should any parent not wish to have his/her child involved in the training and/or assessment, all efforts would be made not only to ensure compliance with the parent's request, but also to prevent the child from feeling isolated. Only one child was not given permission to participate.

Finally, the children were informed of the events taking place and permitted to engage and/or not engage in any aspect of the study and training. Should they choose not to participate in the training provided, they would be permitted to work quietly in a separate area of the team. No students chose not to be involved.

Procedures

The training program was developed in collusion with the 6th grade teachers, the school's youth resources director, and the school's resource teacher. As mentioned, in the previous year, (1996-1997), two teams requested communication training. For one team, the teachers had

requested the researcher (who had a child in each team) to provide training in peer mediation. For the other team, all the students were provided training in very similar information, but without the peer mediation aspect. Based on observation and teacher interviews a couple of months afterwards, it was concluded that peer mediation was not necessarily the best intervention for these students. On the other hand, the teachers of the team that received training for all members, reflected positively on the students' application of various concepts presented. From this information, it was determined that future training should be to the entire sixth grade population, with formal assessment needed to be conducted to establish the effectiveness of the training on desirable constructs, that of verbal aggressiveness and argumentativeness.

All training was conducted in the morning during a time set aside for Teacher Based Guidance (TBG) when the teachers were required to provide daily, guidance on issues of practical living, such as conflict management and friendship development. As such, this training was incorporated into the daily schedule of TBG. As this time was a set 40 minute slot, a five day training program was developed and administered for each section. The training took place over six weeks, with only the researcher conducting the training sessions.

The teachers were asked to stay in the classroom for two reasons: 1) to help maintain discipline, and 2) to demonstrate to the students that the material was worthwhile (as indicated by Tardy, 1992). Frequently, the teachers would interject to help maintain quiet. On occasion, disruptive students would be removed. Whenever possible, however, the moment of disruption was incorporated into the training. Likewise, whenever possible, the training was conducted in a closed classroom. Frequently, the training sessions were moved to a room in the library, where it as hoped that outside noise would be less disruptive. When the presentations were conducted in

the classrooms, the students sat at their desks, generally in rows, facing the presenter. When in the library, they sat at tables, also facing forward. Occasionally, with a very cooperative group, the students sat in chairs formed into a circle.

Content

The content of each day was specific, and had been reviewed by the school officials for appropriateness. The overall program was presented to the children as "COMM 101." The topics for each day included:

1. Making Sense of Symbols: The Core of Communication
    1. Process
    2. Verbal and Nonverbal
    3. Symbolic
    4. Rule-oriented, Culturally-bound
    5. Basic axioms and ways to avoid misunderstandings
    6. The Semantic Triangle
2. Effective Listening as a Communication Tool
    1. Non-listening
    2. Interference with listening
    3. Emotional/Supportive listening (Empathic listening)
    4. How to name and share emotions
3. Making and Keeping Friendships
    1. Defining importance of friendships (particularly in adolescence)
    2. Ways to be a good friend

3. Gender differences in friendship

4. Group Work

    1. Definition and types

    2. Phases of group development

    3. Leadership

    4. Decision-making and Critical thinking

5. Arguing Better

    1. Distinguish between fighting and arguing

    2. Steps to effective arguing

    3. Cultural modes of arguing (i.e., "sounding")

Each session included a PowerPoint presentation, with graphics and animation, lasting about 20 minutes. Along with the presentations, students were given handouts of the slides. The handouts also served to give the students something to focus on at their desks; we allowed them to mark on them and color them, which seemed to dispel the need to disturb each other. In keeping with advice on effective teaching, the "lecture" part of the training was interjected with activities at strategic points. Additionally, for the presentation on arguing, a brief movie clip was used. Finally, there was opportunity for the students to ask questions and engage in discussion.

The materials used in this training stemmed from a number of sources, mostly introductory texts to communication, but also some material from more advanced texts of interpersonal and small group communication. The section on arguing had been constructed before the article by Rancer et al. (1997) had been published, but efforts were made to

incorporate message-design logic, versus the conflict management/mediation/ negotiation approach. The focus on this section was on how arguing is:

1. culturally bound
2. distinctive from "fighting"
3. fun and intellectually stimulating
4. a ***process*** of problem and issue identification, criteria setting, solution selection, decision implementation and evaluation

To discuss cross-cultural issues with regard to arguing, a clip from the movie, "Hook," starring Robin Williams as Peter Pan, was used, particularly the scene when Peter remembers that he is indeed Peter Pan. After a long day of exercise, Peter is exhausted and hungry, only to sit down to a table of empty bowls, plates, and cups. His complaints of hunger to Tinkerbell result in criticism and name-calling from Rufio, the leader during Peter's long absence. The game, called "bang-a-rang," involves coming up with powerful and unique insults. Peter finally wins the game, and regains his imagination (thereby bringing to reality a table full of food), when he engages in the creative name-calling. Rufio does not successfully manage his defeat and threatens Peter Pan, but even his attack does not diminish the pleasure in Peter's discovery of self.

The point is that the game of trading insults, called "bang-a-rang" in "Hook," or called "sounding" by Labov (1972a,b; also called "clowning" or "the dozens"), is a game of wits. Apparently, sounding was a custom practiced in African tribes to toughen a warrior for battle. Perhaps only by coincidence, this practice is also more common among African-Americans, than among other groups of people. As such, many European-American students do not understand

how to play the game, and end up misconstruing the motivation behind the other student's criticism, for example, of his/her mother. The students, particularly the African-American students took great delight in the example, and demonstrated a greater understanding of how arguing involves more intellectualism than does fighting.

Subsequently, the students were led through a debate regarding a then current issue of relevance to the students: having school uniforms. Unlike the limitations placed on Rancer et al. (1997) by the school administration, no limitations were placed with regard to topics. Inherent in this discussion was an opportunity to apply knowledge acquired earlier in the week, such as how we use our clothing to designate group orientation, as well as the need to include those affected by a decision in the decision-making process. Through discussion, the students were encouraged to develop assertions reflective of both arguing and fighting.

Measures

The assessment tools used in this study include the Adolescent Argumentativeness Scale (ADARG) and the Adolescent Verbal Aggressiveness Scale (ADVA), as adapted by Roberto and Finucane (1997) from the Argumentativeness Scale by Infante and Rancer (1982) and the Verbal Aggressiveness Scale by Infante and Wrigley (1986). A Likert-type scale of one to five, from almost never true to almost always true, is used for both instruments.

The ADARG consists of 10 items adapted from the original scale, reworded for greater comprehension by adolescents. Regarding reliability, Roberto and Finucane (1997) found Cronbach's alpha for ADARG to be .81, with .77 for the ADARGap, and .75 for the ADARGav. Test-rest correlations were found to be .66, with support for face, concurrent, convergent, and discriminant validity. Rancer et al. (1997) determined the alphas to be .84 for the ADARGap and

.77 for the ADARGav. Their later study (Rancer et al., 2000) determined alphas of .79 for the ADARGap, and .72 for the ADARGav. Data from this study initially indicated an overall alpha of .84 for the pre test, and .66 for the post test. ADARGav is reported at .57 (pre) and .39 (post), with ADARGap at .76 (pre) and .48 (post).

Scale item analysis indicated problems with three items, especially in the post-training assessment (alphas of .69, .72, and .68), compared to the overall post test alpha of .66. Once removed, the pre-training alpha was .88, with items ranging from .84 to .87; the post-training alpha became .82, with ranges from .77 to .84. These items scored similarly on the respective subscales. Items seven ("I do not like to miss the chance to argue.") and eight ("Arguments are a fun challenge."), of the approach subscale, reveal alphas of .60 and .53 at post test, compared to the subscale alpha of .48. Once removed from the assessment, the approach subscale alpha was .70, with all remaining items ranging from .62 to .68. Item five, included in the avoidance subscale,"I get a bad feeling when I am about to get into an argument." indicated alphas of .86 at pre test and .84 at post test, compared to the avoidance subscale score of .57 at pre test, .39 at post test. Upon elimination the subscale alpha became .86 at pre, .84 at post. With only two items remaining (3 & 6), alphas for each of these were not calculated. Additionally, with so few items representing the avoidance subscale, the general trait (ap- av = gt) score was not used in this study. Ultimately, the ADARG scale used in this report consisted of the remaining seven items.

The ADVA consists of eight items gleaned from the original 20 items, adapted for adolescents (Roberto & Finucane, 1997). Findings from this study support Roberto and Finucane's (1997) reports regarding the reliability and means for these scales. For the ADVA survey, this study reflects Cronbach's alpha of .83 at pre test and .71 at post, supporting Roberto

and Finucane's finding of .78. Likewise, Rancer et al. (1997) determined the alpha to be quite satisfactory at .88 for their initial study, and .86 for the longitudinal study (2000).

These two surveys were presented to the students along with questions regarding age, sex, race, and previous training regarding mediation, communication, and/or argument. The teachers administered the pre tests with the researcher present and providing guidance. The post tests were administered solely by the teachers and returned to the researcher. After matching the pre and post test responses, the personal data collected from the students was removed, and only case numbers used to identify the responses.

Results

According to the results of this analysis, both hypotheses guiding this research are supported. The students' levels of argumentativeness and verbal aggressiveness increased from pre- to post-training assessment. Likewise, males were found to have not only a significantly higher scores on the two measures, but also to have a significantly greater increase in scores on these two scales than their female counterparts. Finally, with regard to research question one, whether there was any significant differences due to race and communication training, the results indicate that these variables did not have a significant impact across any of the various scales or subscales.

Beginning with the ADARG scale, Roberto and Finucane (1997) report their ADARG score at 26.88 (s.d. = 7.44), while Rancer et al. (1997, 2000) report a pre test score for ADARG at -6.19 (s.d. = 11.53), and an immediate post test score of 3.07 (s.d. = 12.72). Roberto and Finucane do not break the ADARG scale into the subscales of approach or avoidance; likewise, Rancer et al. (1997), do not report either the avoidance, approach, or general trait scores in the

1997 publication. However, Rancer et al. (2000) later reports immediate post test scores of 29.45 (s.d. = 7.54) for ADARGap, with ADARGav at 25.99 (s.d. = 6.48), and longitudinal post test scores of 29.88 (s.d. = 7.28) for ADARGap and 26.28 (s.d. = 6.47) for ADARGav. ADARGgt at immediate post test was 3.35 (s.d. = 12.12), and longitudinally was 3.53 (s.d. = 11.42). Given the apparent inability to compare these sums, for this study, means, rather than sums were calculated and are used in this report. As the responses for both surveys ranged from one to five, almost never true to almost always true, means also can range from one to five. Subsequently, these means were subjected to paired t-test analysis, using Bonferoni's adjustment to account for the numerous t-tests. Means, standard deviations, and t-tests for the further revised ADARG scale and subscales are presented in Table 1:

Insert Table 1 here

Regarding ADVA scores, Roberto and Finucane report a mean of 21.29 (s.d. = 5.97). Rancer et al. (1997) report a pre test score of 47.59 (s.d. = 11.53), with an immediate post test score of 50.17 (s.d. = 12.95). Their longitudinal study reflected a score of 54.19 (s.d. = 13.69). Again, as these scores appear to be difficult to compare, means, rather than sums were calculated for the ADVA scale in this study. The pre-training mean is 2.31 (s.d. = .98), with post-training at 2.55 (s.d. = .76). Paired t-test results support hypothesis one indicating a significant increase in the students' scores [t = -3.93, df = 313, $p.$ < .000].

Finally, as the correlation between the ADARG post test and ADVA post test was .57 $p.$< .000, the positive and strong correlation indicated in studies on adolescents by Roberto (1996)

and colleagues. (Roberto & Wilson, 1996; Roberto & Finucane, 1997) was also found to be true in this study. However, the correlation between the two pre-training scores was .84 ($p.< .000$), showing quite a decrease in the strength of this correlation over the training period.

Regarding hypothesis two, the predicted sex-based differences were also supported. Roberto and Finucane report that boys are significantly more argumentative [$t = 5.21$, $p < .001$] and verbally aggressive [$t = 6.00$, $p < .001$] than are girls. This study indicates the same trend, with the results presented in Table 2.

Insert Table 2 here

As indicated, comparisons based on sex reveal that means for ADARG (pre and post), ADARGap (post only), and ADVA (post only), were all significantly higher for boys than for girls. Interestingly, the pre- and post-training scores on the ADARGav showed no significant differences with regard to boys and girls. However, given the limited items used for this scale, the results are rather speculative.

To address research question one, comparing differences across all scales with regard to age, race and communication training, one-way anovas revealed no significant differences with regard to the latter two variables. Even using independent samples t-tests between the two primary groups, European- and African-American, revealed no significant results. However, assessment with regard to age did indicate some significant differences. Pre-training assessment indicates, for both ADARGav and ADARG, that the 11 year old students scored significantly higher than did the 12 year old students [$F = 9.26$, $df = 294$, $p. < .003$; $F = 4.23$, $df = 294$, $p. <$

.041], respectively. There were no significant differences with regard to post-training assessment across all scales and subscales. Likewise, there was no significant differences between the scores of the 10 children who had received previous training and their cohorts.

Discussion

The results of this study are consistent with extant literature. That is, while the training was different in both content and delivery from prior studies (e.g., Rancer et al., 1997, 2000), the results are the same. Despite the corroborating evidence, however, it is still puzzling as to why in adolescent populations argumentativeness and verbal aggressiveness are positively, rather than negatively, correlated. To answer this question, it might be beneficial for future studies to use, in addition to these adapted instruments, other assessment means such as argument generation as explained by Rancer et al. (1997, 2000), as well as ethnographic endeavors, including participant observation (especially of lunchroom behaviors), interviews, and focus group discussions.

Likewise, other data could be collected, if possible, and correlated with assessment results, such as parental attitudes, family income, education, and employment. As this information may not be readily accessible through schools, it may be that other venues be explored, such as church or synagogue youth groups, scouting groups, and teen clubs.

In the training, clear distinctions were made between verbal sparring and aggressiveness as aspects of cultural differences. It was discussed that engaging in such talk with those who are unaware of, or unwilling/unable to play the "game" is unsuitable, as well as simply doing it to avoid "losing" the argument by becoming personal. Perhaps the key is in realizing that verbal aggressiveness, as a positive or negative behavior, is determined socially. As such, what constitutes inappropriate behavior, as in just crossing over the line from verbal sparring into

insults and threatening behavior, is something that we learn, not just because we physiologically mature and "outgrow" these behaviors. As we become adults, such actions are considered to be immature, and therefore, are extinguished, possibly to resurface in an appropriate setting. The point is to realize that development is not just a physiological event, or even a cognitive event, but a cultural/social one as well.

Ultimately, the purpose of this study was not only to teach students how to argue more effectively, but also to improve, overall, their interactions with each other. However, what needs to be understood or considered in future research and training projects, is that how children engage in conflict from early childhood throughout adolescents is distinctive from how adults engage in conflict. Their rules and rationalizations for their behaviors are not the same as for adults. Although children must eventually adapt to an adult world, and conform to adult expectations, reprimands for, and even well-intentioned guidance to better behavior fall on deaf ears, as the reasons are foreign to these children. Their experiences as children are distinctive from the experiences of those who presently are adults.

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Table 1

Adolescent Argumentativeness reports of means, standard deviations, and independent t-tests

Scale/subscale	mean	s.d.	*t**
ADARGpre	2.35	1.09	
ADARGpost	*2.75*	*.98*	*-8.68*
ADARGavpre	2.16	1.37	
ADARGavpost	*2.74*	*.98*	*-7.81*
ADARGappre	2.43	1.06	
ADARGappost	*2.75*	*.97*	*-7.65*

df = 313; post-training scores in italics; * significance at .000

Table 2

One-way ANOVA Results for Argumentativeness and Verbal Aggressiveness According to Sex

				means	
scale	F	df	sig (2-tailed)	boys	girls
ADARGpre*	5.05	312	.040	2.50	2.24
*ADARGpost**	*8.39*	*312*	*.003*	*2.94*	*2.61*
ADARGappre	3.73	312	.054	2.56	2.33
*ADARGappost**	*11.71*	*312*	*.001*	*2.97*	*2.59*
ADARGavpre*	4.15	312	.042	2.45	2.03
ADARGavpost	*3.93*	*312*	*.111*	*2.88*	*2.65*
ADVApre	1.22	312	.271	2.39	2.26
*ADVApost**	*7.73*	*312*	*.006*	*2.69*	*2.45*

boys n = 132; girls n = 182; means range from 1 to 5; * $p < .05$